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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,336

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Yoshiki Sakaguchi

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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

08/24/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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DocketingDept@young-thompson.com

Office Action Summary	Application No. 10/585,336	Applicant(s) SAKAGUCHI ET AL.	
	Examiner Kwang Han	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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**ELECTRODE FOR NONAQUEOUS ELECTROLYTE SECONDARY BATTERY
HAVING AN OUTPUT TERMINAL ATTACHED ADJACENT TO AN ACTIVE
MATERIAL LAYER**

Examiner: K. Han SN: 10/585,336 Art Unit: 1795 August 20, 2010

Detailed Action

1. The Applicant's amendment filed on June 17, 2010 was received. Claims 1-47,10-12, 14, and 16-18 were amended.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Newly amended claims 16-18 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The amendment to claims 16 and 17 places these claims in independent form which are now directed towards a process for making which are independent and distinct from the apparatus as originally claimed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16-18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

4. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Kawakami et al. in view of Kadoguchi et al. on claims 1-4 and 8-18 is withdrawn, because independent claim 1 has been amended.

5. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Kawakami et al. and Kadoguchi et al. as applied to claim 3 and further in view of Shackle et al. and Koksang et al. on claim 5 is withdrawn, because independent claim 1 has been amended.

6. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Kawakami et al. and Kadoguchi et al. as applied to claim 3 and further in view of Tanjo et al. on claims 6 and 7 is withdrawn, because independent claim 1 has been amended.

7. Claims 1-4 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. (US 6051340) in view of Grange-Cossou et al. (US 5077153).

Regarding claims 1 and 15, Kawakami discloses an electrode for a nonaqueous electrolyte secondary battery with a conductive metal layer (101, metal foil layer) a first active material layer on a first side of the metal layer and a second active material layer on a second side of the metal layer (Figure 4d; 10:6-33) where on the outer surface of the negative electrode having a terminal extended from a portion formed of the metal within the anode [Abstract] and metallic materials (106) spaced on the surface to serve as a collector portion (10:55-65) to provide an improved current collecting performance

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(12:28-33) but does not explicitly teach having an output terminal attached to the surface of the electrode along the thickness direction.

Grange-Cossou teaches a process for making an electrode for an electrochemical cell where the connector (2, output terminal) is placed on the active surface of the cell (thickness direction of the electrode; Figures 1 and 2) and compressed to form an electrode with a connector (2:55-62) for the benefit of providing an adequate connection, reduce mechanical stress, reduce preparation steps, and negligible reduction of the active surface (2:6-23). It would have been obvious to one of ordinary skill in the art at the time of the invention to attach an output terminal to the surface of the electrode because Grange-Cossou teaches it provide a adequate connection with reduced mechanical stress, reduced preparation steps, and negligible reduction of the active surface.

Regarding claim 2, Kawakami discloses active material contained in the active material layer comprising silicon (semiconductor material) as a material (13:36-38).

Regarding claim 3, Kawakami discloses a pair of current collecting surface layers (Figure 4b-4d) in contact with an electrolyte (4:59-65) and an active material layer interposed between the surface layers containing a particulate active material capable of forming a lithium compound (13:36-38).

Regarding claim 4, Kawakami discloses the active material layer to have a metal material that is a non-alloyable metal (less capable of forming a lithium compound) to function as a collector (13:40-46).

Regarding claim 8, It is noted that this claim is a product-by-process claim. "Even though product-by-process are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Regarding claims 9, 10, and 11, Kawakami discloses the surface layer to contain a non-alloyable material (first metal material) as part of the powdery material (13:53-14:3) and may comprise an alloy of two or more of these metals or further may comprise stainless steel (13:40-49).

Regarding claim 12, Kawakami discloses the surface layer to have a multilayer structure having two sublayers including a layer including a binding agent with particles from the powdery material (Figures 4c-4d). Kawakami further teaches multiple non-alloyable metal materials (13:40-43) formed on the surface of the anode to prevent the anode's surface from powdering and avoiding a reduction in the current collecting performance (9:61-10:5; Figure 4b). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a surface layer with non-alloyable metal materials on the surface of the electrode because it prevents the anode's surface from powdering and avoiding a reduction in the current collecting performance.

Regarding claim 13, Kawakami discloses the active material to include silicon (13:35-39).

Regarding claim 14, Kawakami discloses a collector member (101, metal foil; 14:36-42) in the middle of the thickness direction with active material layers present on both sides (Figure 4d) with examples of formed anodes having a thickness of 50 to 80 microns thick (Examples 1-9; 20:10-23:55). For example a dual layer anode formed from example 6 with the foil (35 microns thick) and the active material layer (25 microns thick) would have a total thickness of 85 microns.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. and Grange-Cossou as applied to claim 3 above, and further in view of Shackle et al. (US 4925751) and Koksbang et al. (US 5368959).

The teachings of Kawakami and Grange-Cossou as discussed above are herein incorporated.

Regarding claim 5, Kawakami et al. is silent towards the claimed range of thickness for the surface layer. The surface layer is taken to be a current collector. Shackle et al. discloses the thickness of the current collector is preferably as thin as practicable to reduce the size and weight (4:49-51). Koksbang teaches the current collector should be at least a few microns in thickness and is self supporting (3:25-28). One of ordinary skill in the art would have recognized the thickness of the current collector is a result effective variable where if it's too thin it is not self-supporting and too thick increases the size and weight of the battery as well as the amount of material needed. It would have been obvious to one of ordinary skill in the art at the time of the invention to vary the thickness of the current collector since it has been held that

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discovering the optimum ranges for a result effective variable such as thickness involves only routine skill in the art in the absence of showing of criticality in the claimed range (MPEP 2144.05) In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

9. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. and Grange-Cossou as applied to claim 3 above, and further in view of Tanjo et al. (US 2002/0028380).

The teachings of Kawakami and Grange-Cossou as discussed above are herein incorporated.

Regarding claims 6 and 7, Kawakami discloses the anode layers to be formed of a powdery material (13:50-56) but is silent towards the surface layers having micropores with an average open area or open area ratio, extending in the thickness direction.

Tanjo teaches a battery where the active material is porous to provide the optimal power density by allowing the optimal amount of electrolyte solution into the electrode [0048]. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the electrode active material of Kawakami to be porous at a sufficient average open area because Tanjo teaches it affects power density by allowing optimal amounts of electrolyte solution.

Response to Arguments

4. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795